

## Pythium Management in Turf

### Causal Pathogen

Fungi from the Pythium genus are soil borne plant pathogens capable of causing different diseases on a range of turfgrasses including both cool and warm season species.

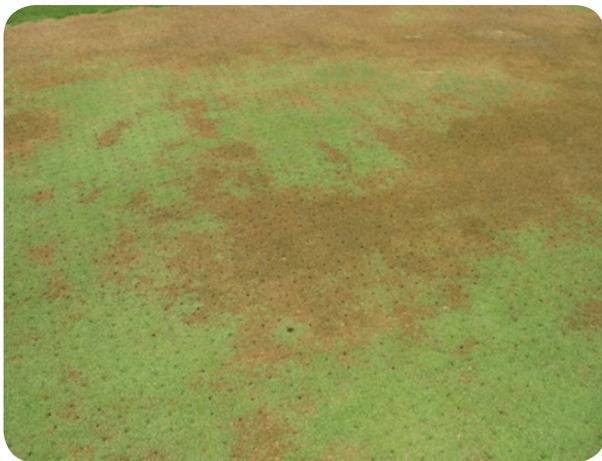
Pythium spp. can be a disease to both seedling and mature turfgrass swards. *Pythium aphanidermatum* and *Pythium ultimum* are the two most predominant turf infecting species (Vargas, 1994).

### Symptoms

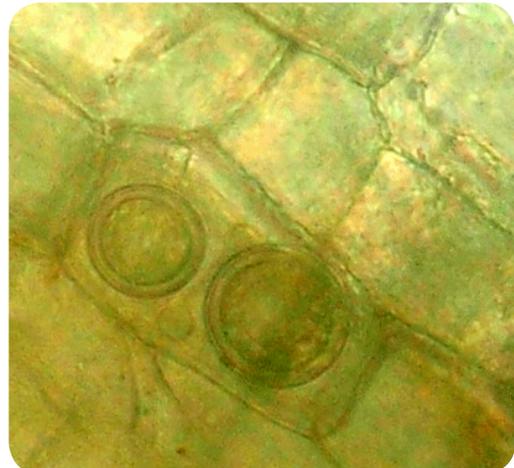
The first symptoms of Pythium blight are circular reddish brown spots in turf, ranging in size from 2.5 - 15cm. In the morning dew, infected leaf blades appear water soaked and dark, may feel slimy and often mat together. As they dry, the leaf blades shrivel and turn reddish brown.

On humid nights when dew forms, you may see mycelium on the outer margins of the spots the next morning. The mycelium may remain active and visible far into the day, as long as there is plentiful moisture on the plant.

The infected grass plant collapses quickly. If temperature and relative humidity remain high, the spots may coalesce, and large areas of turf can be lost.



Pythium Blight Damage



Pythium Oospores in turfgrass roots

### Occurrence

Both species of Pythium survive as a saprophyte in the thatch, soil or both. When conditions are favourable, the disease invades roots as well as plant tissue and spreads from plant to plant via active mycelial growth. Pythium is a 'water mould' and survives well in water logged soils or on debris in ponds.

Pythium can occur year round, however the disease is most severe when temperatures and relative humidity are high. Shane found in 1994 that Pythium infection was likely to occur when 1) A maximum daily temperature was higher than 27.7 degrees Celcius, 2) Followed by at least 9 hours of relative humidity greater than 90%, provided the minimum temperature was higher than 20 degrees celcius.

## Cultural Control Practices

Good soil drainage will reduce Pythium activity. Hence, in areas where drainage is poor soil amendment may be required. Thatch control and avoidance of over fertilisation are recommended for limiting the possibility for disease incidence. Good air circulation also helps minimise disease activity.

## Chemical Control Options

Pythium can be managed with a number of systemic or contact fungicides. These are outlined in more detail below:

Product	Pack Shot	Key Points	Application Rate
<b>Chipco Signature®</b> <i>A registered trademark of Bayer Environmental Science.</i>		<ul style="list-style-type: none"> <li>• Benchmark for preventative Pythium control</li> <li>• Systemic in both directions in the plant</li> <li>• Up to 28 days protection</li> <li>• Turfshield Technology</li> </ul>	12.5kg/Ha
<b>Banol™</b> <i>A trademark of Bayer Environmental Science.</i>		<ul style="list-style-type: none"> <li>• Fast acting systemic</li> <li>• Excellent curative activity</li> <li>• Good to have on shelf during summer season</li> </ul>	6.5L/Ha
<b>Subdue MAXX®</b> <i>A registered trademark of Syngenta.</i>		<ul style="list-style-type: none"> <li>• Effective xylem systemic fungicide</li> <li>• Provides protection for up to 21 days</li> <li>• Excellent rotation partner with Chipco Signature® in a preventative program</li> </ul>	1.75 – 3.5L/ha
<b>Heritage MAXX® &amp; Headway MAXX®</b> <i>A registered trademark of Syngenta.</i>		<ul style="list-style-type: none"> <li>• Systemic fungicides, providing excellent disease control for up to 28 days.</li> <li>• Strong in controlling other pathogens as well as Pythium during stress periods.</li> </ul>	Heritage MAXX - 6L/Ha Heritage MAXX - 9L/Ha
<b>TMTD 600™</b> <i>A trademark of Ecofertiliser Pty Ltd.</i>		<ul style="list-style-type: none"> <li>• Registered for Damping off control.</li> <li>• Contact fungicide offering 10-14 protection.</li> <li>• Useful tank mix partner with systemics to strengthen foliar protection.</li> <li>• Useful preventative on Brown Patch and other diseases.</li> </ul>	16 – 20L/Ha

### References

1. Shane.W.W. 1991. Prospects for Early Detection of Pythium Blight by Anti-body Aided Monitoring of Pythium blight on Turfgrass. Plant Disease 75-921-925.
2. Vargas, J.M. 1994. Management of Turfgrass Disease, CRC Press Inc.

